

quatrefoils and in other forms, and we have often so made them. We have lately observed in one of the beautiful alcoves in the north aisle of the nave of St. Paul's Cathedral, a curiously-terrible monodescription apparatus, half-Bronchian-brazier, half-giant-German-stove, placed there as a pattern, we have been told, for twelve or more such things, to be set in the sacred edifice, under the vain idea of raising sensibly the temperature of the vast body of air within the fabric; but instead of doing which, will be sure to deface the marble statuary, to soot and grime the interior of the church, and certainly not bleach its exterior, by the fire iron-piping so tastelessly thrust through the great window-glazing, to discharge the smoke all about the masonry, and rebound from every cornice and projection of the edifice. These demi-coal-cauldrons demi-fume-funks

seem, indeed, prepared for the festival occasion of the recovering the Gypsies into the bosom of the Church. Maintaining these censors and their bituminous pit-coal incense and of the consequently sooty windows, will only cost about twice as much as maintaining instead pictorial and historical Scripture subjects in stained glass throughout the fabric.—E.]

VENTILATION.

SIR.—I know not which most superabundant, cracked arches or cracked architects and builders. Could any man in his senses build a house with fire-places of the mode and dimensions which we usually see them, and at the same time carefully endeavour to make the rooms as air-tight as possible, except at those times when the doors or windows are open?

Heating and ventilating are one question—as well might we endeavour to sustain a man by giving him all victuals and no drink as to give him all heat and no ventilation. Well may the head-ache arise from the operation of an Arnott's stove; because, unfortunately, even that most barbarous excuse for ventilation, the chimney, is closed, that the Arnott's stove may be affixed to the flue. But had the true principles of heating an apartment been borne in mind, then, before such a stove had been put into operation, pipes for the admission, and pipes for the emission, of air would have been constructed, and those pipes would have been connected with wire-gauze covers, &c., acting through a perforated cornice, skirting, &c., according to the local circumstances of the room; and thus a regulated admission of pure air, and a regulated emission of heated and deteriorated atmosphere, would be commanded, and Dr. Arnott's stove have a fair chance of its merits being judged. Colds would be less frequent, as wholesome warm air would be had without the catarrh-binging draughts attendant upon the present unscientific chimneys.

The heating of a room is governed, in all cases, by the principle of fluids finding their level in accordance with their density or weight. As a certain portion becomes heated, it rises, and its place is supplied by that portion which is colder, and consequently heavier. This is carried on by the Arnott's stove, as we now see it employed; but, unfortunately, although the air of the room may become warmer, it also becomes impure, because the same air again and again circulates about the heated stove; in fact, we may say it becomes burnt, or arid, and unfit for human respiration. But were this kind of heating combined with a proper system of ventilation, and that ventilation capable of being regulated at pleasure, no such ill effects would arise.

The circulation of the water in the pipes, as used in the hot-water mode of heating, is exactly analogous in its operation to what we have just said of the atmosphere, and may be an useful comparison to those who may not have given this subject much consideration.

Should not the many thousands of cracked arches be so many thousand reasons why architects and builders should alter their mode of constructing such arches? And should not the many thousands of zinc pipes, iron pipes, and earthen pipes, now so awfully disfiguring the tops, alike of the mansion and the citizen's dwelling, be as many thousand loud-sounding trumpets, calling with stentorian notes upon the learned men of the 19th century to alter their modes of heating apartments? *Finis.*

coronat opus. Save our houses from such crowns, such finials! J. J. EDWARDS.

P.S.—Should you see any utility in it, I would, at an early period, send you plans for the ventilation of apartments, schools, and school dormitories.

February 19, 1844.

[We should be happy to receive from our correspondent any good suggestions for the purpose.—E.]

MEASURING ROUND TIMBER.

SIR.—You did me the favour of inserting my elucidation of the round timber measurement in your last number. I know several of your readers who do not now understand it, by their not being acquainted with algebraic notation. I used the following mechanical method to convince them how the discrepancy arises, which succeeded well. Judging, by analogy, there are many others who read *THE BUILDER* for their improvement equally at a loss to understand it. I submit it to you, that if you think it worth a place in your journal, it may be inserted. Let the annexed figure with the dotted lines represent the axis of the timber in question; the line *bb* its centre circumference; then imagine the butt-end of the tree to be slipped off from the centre, similar to a telescope, and leaving that part a cylinder, as represented by the lines *bc, de*, whose diameter will be the diameter in the middle of the length of the tree, i.e. 3 feet 3 inches; then suppose the trunk so slipped off to be turned round, and the top of the tree inserted therein; the tree would then be represented by the lines *cd, d, bc*.

Now, from the inspection of the figure, it is evident, in making the tree a perfect cylinder, as per "J. M.'s" measurement, the circumference of the middle circle, must fit the circumference of the inner circle, representing the top of the tree, and the outer circle, *dd*, must exactly coincide with the middle circle; but the circumference of the top of the tree is 15.708 feet, the circumference in the centre of the tree 10.2102 feet; I should, therefore, have 8.6394 feet left. The circumference of the large end 18.4496 feet, which is an excess over the middle circle of 8.6394 feet also. Let the 10.2102 feet be measured from *d* to *d* on the outer circumference, then the 15.708 feet measured from *d* to *f* on the middle circumference, then imagine the component parts of the wood giving way with each other, so that the lines *o d* and *o c* could be brought round exactly to coincide with each other on the line *o g h*; by cutting out the truncated pyramid *d d o*, we should then have a cylinder 80 feet long and 3 feet 3 inches in diameter. But then we have a pyramid left with a base 8.6394 feet by half the difference between the middle and large diameters of the tree, i.e. 1 foot 4½ in. and 40 feet high, which, supposing the tree to be measured as the cylinder is rejected, hence the whole tree is not measured. The solid contents of the tree, per cylindrical method, is 663.663 feet as before, the solidity of the rejected pyramid $\frac{8.6394 \times 1.375}{3} \times 40 = 158.389$ feet,

which added to 663.663 feet = 822.052 feet, the solidity of the tree measured as the frustum of a cone, which proves the cylindrical method does not measure the tree truly by nearly 4th part.

Now, by cutting the tree in two on the line *bb*, and measuring each part separately, and following the same steps in each, as we have done in the whole tree, we can easily see why the two parts together measure more than the tree in one; for, in this case, we shall have to reject two truncated pyramids, 20 feet high each, and whose two bases are each 4.3197 feet by 4.3197 feet; this, taken from the former pyramid, viz. 158.389 feet, leaves 118.7915 feet, the excess of the two parts, when measured

separately, more than the tree when measured in one.

Measurement in two parts { $\frac{\text{Frust. of the cone, } 782.45475 + 39.59725}{2} = 411.026$

Tree in one as before..... $\frac{782.45475}{2} = 391.227375$

Excess as before..... 118.7915

Then the contents of the two cylinders added to the two pyramids will again equal the frustum of the cone, $782.45475 + 39.59725 = 822.052$, as before.

The tree, measured by the quarter-girth method, may be contrasted with the square pyramid in the same manner as I have done the cylinder with the frustum of the cone, when your correspondent "L." would instantly see the answer to his inquiries. Apologizing for occupying so much of your paper,

I remain, yours respectfully,

R. A. P. not R. F. P.

Newman-street, Feb. 19, 1844.

N.B. I beg to inform your well-wisher, "J.W.P." he may obtain SYMPATHETIC INK for folding doors, either with or without springs, at No. 4, Poland-street, Oxford-street. I send some from there last week, which are exceedingly well.

USELESS TROUBLE TO CONTRACTORS.

SIR.—Seeing an advertisement in five different papers, and a notice of the same in your useful publication, of works to a turret and other works to be constructed for to be done at Preston Hospital, near Wellington, I took the trouble of going to examine the drawings, &c., expecting to find something worth looking after; but imagine my disappointment when I found the turret to be about 17 feet high, 7 feet in length on the plan, and 4 feet wide, and the other works a privy! Now, whatever might be the motive for an extensively advertising such a concern, I do think that it is "too bad," to call tradesmen for their employment, and put them to considerable expense for so paltry an affair, which I believe altogether will not exceed 50*l.*; therefore I have taken the liberty to send this account thereof to you as the advocate of the rights of the trade, leaving you to make what use you think proper of the communication. I am, Sir, yours truly, P. Wolverhampton, February 20, 1844.

DOUCEUR.

SIR.—Permit me to make an observation in your publication of this week in reference to an advertisement that appeared in your last week's number.

I find some person undertaking to offer a douceur of 4*l.* in any foreman of a good shop, if he will undertake to rob his master once per week for twelve months, viz., by giving the advertiser twelve months' work, at, of course, 30*s.* per week—about 10*s.* per week more than his real worth.

If there is a class of individuals creeping into employment in any shops on such distasteful terms, I hope the master-builders will have an eye to such business, and discharge any foreman who would be base enough to commit such an indirect robbery as that proposed in the advertisement of last week.

I am, Sir, your obedient servant,
February 20. A BUILDER'S FOREMAN.

NEW CHAPELS AT THE NEWHALL CEMETERY.

SIR.—I am desired to inform you that the artists who have competed for the chapels at the Newhall Cemetery will be admitted to an inspection of all the designs on Monday and Tuesday next, Feb. 26 and 27, between the hours of 11 and 5 o'clock, at this office.

I am, Sir, your obedient servant,

G. BURRIS, Jun., Sec.
London Cemetery Company, 15, Bridge-street, Blackfriars.

SIR.—Will any one of your numerous readers inform me why it is that a plumber receives more wages, and works fewer hours, than a joiner? I have been in practice some time as a surveyor, but never could discover any reason for it other than custom. The plumber's art does not, as appears to me, require more ability than the joiner's, and the joiner's tools are certainly much more expensive than those of the plumber. I am, Sir,

A CONSTANT READER AND SUBSCRIBER.